
IV. *An Account of a Book entituled*, Prodromus Cryſtallographiæ. De Cryſtallis impropriè ſic dictis Commentarium. A Mauritio Antonio Cappeler, M. D. & Centumviro Lucernenſi. Lucernæ 1723. 4o. *By* J. G. Scheuchzer, *M. D. Coll. Med. Lond. Lic. R. S. S.*

THE Author of this Treatiſe takes notice in the Preface, that it is only a ſmall Part of a larger Work, which he promis'd the Publick ſome Years ago, under the Title of *Cryſtallographia*, and hath now almoſt ready for the Preſs. This greater Work, as he intimates at the Cloſe of this Diſcourſe, is to conſiſt of three Parts, the firſt of which contains the Definition of Cryſtal, with the Synonyms given it by ſeveral Authors both ancient and modern, and an Account of its Properties, Figure, Pellucidity, ſpecifick Gravity, and Bigneſs; as alſo the Place of its Growth, chiefly in regard to *Swiſſerland*, the moſt plentiful Country in *Europe*, as to this Sort of natural Productions; the Signs, whereby hidden Cryſtal Mines may be diſcover'd, and the Way of working them. In the ſecond Part will be examined the Opinions of ſeveral Natural Hiſtorians, about the Origin of Cryſtal, and the Author's own eſtabliſh'd and prov'd. In the third Part will be ſhewn the Uſes of Chryſtal, both Phyſical and Mechanical, and ſome few Hints given, relating to the juſt Value the World has at all Times put upon this beautiful Production of Nature.

The Author divides this preſent Eſſay into two Parts, *viz.* a ſhort Commentary upon the *Cryſtallos*, as he calls them, *impropriè ſic dictos*, in the firſt; and an Account of ſuch as he found mentioned in ſeveral Authors, with a Reduction of them under certain Heads, in the ſecond. *Cryſtalli impropriè ſic dicti*, according to the Author's Definition, are ſuch Bodies, either Stones, Metals, or Salts, as have any Reſemblance with the true Cryſtal; either, as to their multangular, regular, or irregular Figure, or as to their Pellucidity, or any other of its eſſential Properties. As the Number of theſe Bodies is very extenſive, ſo an exact Enquiry into them cannot but be both uſeful and agreeable. I juſt now obſerved, that the *Cryſtalli impropriè ſic dicti* are taken out of Stones, Metals, and Salts. To the firſt belong amongſt other Things ſuch precious Stones, as, in all Probability, have their certain, determined Cryſtal like Figures, as Diamonds, Amethyſts, *&c.* To the ſecond belong all Sorts of *Pyritæ*, as alſo the Growth of Silver, and other Metals, in Form of Trees, or other Things. By the third are underſtood all Chymical Preparations of Salts, and ſaline Bodies, the Figure of which is, generally ſpeaking, more accurate, than in any of the two former. Several Authors of Note have endeavour'd to explain how, Cryſtalliſation is perform'd, or how it comes, that certain Subſtances ſhoot into Cryſtals. Dr. *Cappeler* mentions the Hypotheſis of the learned *Gulielminus*, and that of a late *Swediſh* Author, *Swedenbergh*; and though he ſeems more to favour the latter, than he doth the former; yet he thinks, that they are both liable to Exceptions. But whatever the Cauſe or Method of Cryſtalliſation be, our Author takes it for granted, that three Things are abſolutely requir'd for it, *viz.* *Salt*, which muſt always be an Acid, as is evident by Chymical Experiments, and the very Taſte of ſaline Cryſtals, *Water* and *Earth*. Cryſtalliſation, as far as can be gueſs'd by Chymical Obſervations, is perform'd thus: Particles of certain determined Shapes, ſwimming in a Fluid of a certain Conſiſtence, are, either by the inteſtine Motion of this Fluid, or by the Motion of the Air, ſuppoſed to circulate perpetually through its Pores, or by ſome other Cauſe, brought together, ſo as to form larger Bodies of a Figure proportionable both to the Degree of Impulſion, and the primitive Shape of the conſtituent Parts, or determined by theſe two Things. This Act of Cryſtalliſation, though uniform, as to the Union of Particles conſider'd in itſelf, is yet obſerved to be very different, and to have different Effects, with reſpect to the different Nature of the Fluid, in which Cryſtals are formed, and the Degree of Perfection, to which they are brought. Our Author mentions ſix different Kinds of Cryſtalliſation, each of which, he intends to explain more fully in his larger Work. The firſt Sort of Cryſtalliſation, which hath been examin'd with a great deal of Accuracy by *Gulielminus*, is performed in an aqueous Fluid, wherein ſaline Particles have been diſſolved, boil'd to a certain Degree of Conſiſtence, commonly that of a thin *Pellicula* covering its Surface. This aqueous Fluid muſt be afterwards repos'd in a cool Place, that the ſaline Particles contain'd in it may form themſelves into Cryſtals, which is done in more or leſs Time, according to the different Nature both of the Fluid and Salts. All Chymical Preparations of Salts, the Origin of precious Stones, and of the Cryſtal itſelf, belong to this firſt Kind. Our Author obſerved, that in the *Spiritus aperitivus Glauberi*, (which is a Preparation of *Ciner Clavell.* p. ii. & *Sal*

Armon.

Armon. p. i.) after a Year's ſtanding, form'd themſelves artificial Cryſtals, in Figure and Pellucidity exactly like the true ſexangular Cryſtal, and pointed on both Sides. The ſecond Kind of Cryſtalliſation differs from the firſt only in this, that it is performed not in a thin, pellucid, aqueous Fluid, but between thick, mineral, or metallical Mixtures, corroded by acid Salts in the Bowels of the Earth. The third Sort is of a middle Kind between the firſt, and a Coagulation, *viz.* when the Fluid, in which Salts have been diſſolved, is, by degrees, entirely evaporated. This Way of Cryſtalliſation is more proper for diſcovering the primitive Shapes of ſaline Particles. Our Author hath examined ſeveral Salts, both Mineral and Vegetable, and ſeveral Chymical Preparations after this Manner, and hath given us their Figures, as they appear'd to him under a good Microſcope, in two Tables annexed to this Treatiſe. The fourth Sort of Cryſtalliſation is perform'd in a ſtill thinner Fluid than Water is, or in the Air; the Sublimations of the Chymiſts, the Diſtillation of volatile Salts; Snow, whoſe wonderful Figure hath been thought worthy the Amuſement of ſeveral eminent Men; Hail, which is again of very different Shapes; Froſt, and that admirable Variety of Trees, Landſkips, and other inimitable Figures, which, in very froſty Weather, appear upon Glaſs-Windows, or other pellucid Bodies, muſt be all reduced to this fourth Sort. The fifth Sort of Cryſtalliſation is perform'd upon the Surface of a thicker Fluid, as Water, between that and a thinner one, as Air; of this Kind is chiefly Ice. The ſixth and laſt Sort of Cryſtalliſation, mention'd by our Author, differs from all the former, in that it is perform'd neither by the Riſe of Vapours, nor by the repoſing of any Fluid, but on the contrary in a Fluid, which is in a perpetual Motion. That Sort of icy Concretions, which is obſerv'd near ſwift running Waters, and is commonly very porous, not unlike the Tophus, and the ſtony Concretions in ſubterranean Cavities, call'd *Stalactitæ*, belong to this laſt Sort. Thus far what is contained in the firſt Part,

The ſecond gives an Account of ſuch *Cryſtalli improprie ſic dicti*, or Cryſtalline Bodies, which are not properly Cryſtals, as have been mentioned by ſeveral Natural Hiſtorians both ancient and modern. The Author diſtributed them into the following Claſſes, each of which comprehends Stones, Metals and Salts.

Corpora Cryſtalliſata, quæ improprie Cryſtalli vocantur.

Claſſ. I. Globoſa, rotundata & ſphæroidea.
——— II. Conica, Conoidea & fuſiformia.
——— III. Cylindrica, ſolida aut tubulata.
——— IV. Pyramidalia & cuneiformia.
——— V. Priſmatica, Parallelepipeda, Rhomboidea, Trapezoidea.
——— VI. Polyedrica, & Polygona, regularia & minus regularia.
——— VII. Racemoſa, Arbuſculorum in modum, & filamentoſa, filorum, aut capillorum inſtar naſcentia & ſtriatim contexta.
——— VIII. Cruſtis, ſquamis, lamelliſque contexta, ſine, vel cum figura propria.
——— IX. Corpora, quorum cum Cryſtallo affinitas in pelluciditate potiſſimum conſiſtit, figurâ eorum nativâ, vel incertâ vel nondum perſpectâ.

FINIS.